DETAILED ACTION

Response to Amendment

The rejection of claims 25, 26 & 28-40 under 35 USC 112 is withdrawn due to amendment.

Claims 25, 26 & 28-40 are pending examination as discussed below.

Information Disclosure Statement

The information disclosure statement filed on 6/30/09 has been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 25, 26 & 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,824,434 (Kawakami) in view of US 4,297,249 (Przybyla) and US 4,338,200 (Zeijlstra).

Kawakami teaches a process of making a zinc anode by kneading together active material such as zinc hydroxide with a salt of an acid such as sodium phosphate (18:1-25).

Kawakami is silent to using a fatty acid or graphite in the process of making the electrode.

Przybyla teaches a method of making an electrode by adding an alkali metal salt of a fatty acid, including the metal of potassium and a fatty acid of stearic acid, forming potassium stearate (5:3-33). Graphite is also added to the mixture to act as a lubricant and it is well known in the art to add graphite as a conductive component to improve the electrical conductivity of the electrode (6:65-68). The metal salt of the fatty acid promotes acts as a lubricant by lowering the internal friction of the powder and also helps to form a more consistent and uniform density to the electrode (5:10-18).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mix of Kawakami with the alkali metal salt of a fatty acid and graphite as taught by Przybyla to aid in the lubrication of the powder as it is formed, which promotes a more consistent and uniform density to the electrode.

Kawakami is silent to first precipitating the zinc hydroxide that is taught as being used to make the anode. The method of precipitating zinc hydroxide is well-known in the art and it would be obvious to one of ordinary skill in the art to understand and be able to perform the chemistry to precipitate zinc hydroxide rather than purchase the product.

Zeijlstra teaches a method of precipitating heavy metals from aqueous liquids. A zinc hydroxide precipitate is acquired by mixing together zinc stearate and sodium hydroxide in an aqueous medium (Abstract, 1:35-40, 2:50-53, 3:60-68, 4:15-25).

Zeijlstra teaches precipitating zinc hydroxide using the same method and same components as exemplified by applicant in the instant application. Precipitating zinc hydroxide is a well-known method of obtaining the material and using zinc hydroxide to make an anode is also well-known.

Therefore, it would be obvious to one of ordinary skill in the art to use the well-known method of obtaining zinc hydroxide to produce the composition that is going to be used in the well-known anode active material. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add alkali metal salt to the first precipitate of zinc hydroxide before adding the solution of a salt of an acid, since it has been held that the selection of reversing the steps of a prior art process is *prima facie* obvious; the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; and any order in mixing ingredients is *prima facie* obvious (MPEP 2144.04(IV) (C)).

2. Claims 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,824,434 (Kawakami) in view of US 4,297,249 (Przybyla) and US 4,338,200 (Zeijlstra) as applied to claim 30 above, and further in view of US 4,146,685 (Tucholski) and US 4,307,027 (Borzelli).

The teachings of Kawakami, Przybyla and Zeijlstra as discussed above are incorporated herein.

Kawakami and Przybyla are silent to using zinc stearate in the active material composition.

Tucholski teaches the use of stearates, such as zinc and calcium, as a lubricant and stabilizer and adds the stearates in the amount of about 0.5% (Table 1). Only a minor amount of the stearate is added to mixture to improve the flow and molding of the electrode but not detract from the electrical properties by lowering the density of the active material. Furthermore, it would have been obvious to one having ordinary skill at the time of the invention to vary the amount of the stearate to find the amount needed to promote proper electrode molding and formation, since it is held that discovering an optimum value of a result effective variable involves only routine skill in the art (*MPEP 2144.05*).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mixture of Kawakami and Przybyla with the zinc stearate amounts presented in Tucholski to improve the molding and forming of the electrode without diminishing the electrical density of the electrode.

Kawakami, Przybyla and Tucholski are silent to making the zinc stearate by precipitation. The method of precipitating zinc stearate is well-known in the art and it would be obvious to one of ordinary skill in the art to understand and be able to perform the chemistry to precipitate zinc stearate.

Borzelli teaches a method of forming metallic salts of higher fatty acids (Abstract). The method involves making a metallic salt of a fatty acid, such as zinc stearate, by mixing zinc sulfate with sodium stearate to precipitate zinc stearate (1:40-45, 2:5-10). This method of making zinc stearate is the same method as discussed by instant application. Precipitating zinc stearate is a well-known method of obtaining the material and using zinc stearate in an anode is also well-known and beneficial for reasons already stated.

Therefore, it would be obvious to one of ordinary skill in the art to use the well-known method of obtaining zinc stearate to produce the composition that is going to be used in the well-known anode active material. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

3. Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,824,434 (Kawakami) in view of US 4,297,249 (Przybyla), US 4,338,200 (Zeijlstra), US 4,146,685 (Tucholski) and US 4,307,027 (Borzelli) as applied to claim 32 above, and further in view of US 5,688,616 (Yamawaki).

The teachings of Kawakami, Przybyla, Tucholski, Zeijlstra and Borzelli as discussed above are incorporated herein.

Tucholski is silent to using calcium nitrate as the salt of the mineral acid.

While Tucholski teaches the use of the calcium stearate in the electrode's active material, the use of calcium nitrate as a precursor is not taught. As discussed above, Borzelli teaches the well-known method of precipitating a metallic salt of a higher fatty acid, like a stearate. Yamawaki teaches it is known in the art that calcium nitrate and zinc sulfate are substitute salts for use in a battery (7:47-51). Substituting the calcium nitrate salt for the zinc sulfate salt in the well-known precipitation reaction taught by Borzelli to produce the calcium stearate as taught by Tucholski is obvious to one of ordinary skill in the art and well within the purview of the skilled artisan.

It would have been obvious to one skilled in the art at the time of the invention to substitute the calcium nitrate for the zinc sulfate and then with the stearic acid, produce the calcium stearate, since it is held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended us as a batter of obvious design choice (MPEP 2144.07)

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mixture of Kawakami and Przybyla with the amounts presented in Tucholski to improve the molding and forming of the electrode without diminishing the electrical density of the electrode. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

4. Claims 25, 26 & 28-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,492,744 (Brown) in view of US 4,297,249 (Przybyla), US 4,338,200 (Zeijlstra), US 4,146,685 (Tucholski) and US 4,307,027 (Borzelli).

Brown teaches a process of making a zinc anode by mixing together active material such as zinc hydroxide with graphite (2:10-30). Brown further teaches that it is known to make a zinc anode in a charged state using zinc or in the discharged state using zinc oxide or zinc hydroxide.

Brown is silent to using a fatty acid in the process of making the electrode.

Przybyla teaches a method of making an electrode by adding an alkali metal salt of a fatty acid, including the metal of potassium and a fatty acid of stearic acid, forming potassium stearate (5:3-33). Graphite is also added to the mixture to act as a lubricant and it is well known in the art to add graphite as a conductive component to improve the electrical conductivity of the electrode (6:65-68). The metal salt of the fatty acid promotes acts as a lubricant by lowering the internal friction of the powder and also helps to form a more consistent and uniform density to the electrode (5:10-18).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mix of Brown with the alkali metal salt of a fatty acid and graphite as taught by Przybyla to aid in the lubrication of the powder as it is formed, which promotes a more consistent and uniform density to the electrode.

Brown is silent to first precipitating the zinc hydroxide that is taught as being used to make the anode. The method of precipitating zinc hydroxide is well-known in the art

and it would be obvious to one of ordinary skill in the art to understand and be able to perform the chemistry to precipitate zinc hydroxide rather than purchase the product.

Zeijlstra teaches a method of precipitating heavy metals from aqueous liquids. A zinc hydroxide precipitate is acquired by mixing together zinc stearate and sodium hydroxide in an aqueous medium (Abstract, 1:35-40, 2:50-53, 3:60-68, 4:15-25). Zeijlstra teaches precipitating zinc hydroxide using the same method and same components as exemplified by applicant in the instant application. Precipitating zinc hydroxide is a well-known method of obtaining the material and using zinc hydroxide to make an anode is also well-known.

Therefore, it would be obvious to one of ordinary skill in the art to use the well-known method of obtaining zinc hydroxide to produce the composition that is going to be used in the well-known anode active material. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add alkali metal salt to the first precipitate of zinc hydroxide before adding the solution of a salt of an acid, since it has been held that the selection of reversing the steps of a prior art process is *prima facie* obvious; the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; and any order in mixing ingredients is *prima facie* obvious (MPEP 2144.04(IV) (C)).

Brown and Przybyla are silent to using zinc stearate in the active material composition.

Tucholski teaches the use of stearates, such as zinc and calcium, as a lubricant and stabilizer and adds the stearates in the amount of about 0.5% (Table 1). Only a minor amount of the stearate is added to mixture to improve the flow and molding of the electrode but not detract from the electrical properties by lowering the density of the active material. Furthermore, it would have been obvious to one having ordinary skill at the time of the invention to vary the amount of the stearate to find the amount needed to promote proper electrode molding and formation, since it is held that discovering an optimum value of a result effective variable involves only routine skill in the art (*MPEP 2144.05*).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mixture of Brown and Przybyla with the zinc stearate amounts presented in Tucholski to improve the molding and forming of the electrode without diminishing the electrical density of the electrode.

Brown, Przybyla and Tucholski are silent to making the zinc stearate by precipitation. The method of precipitating zinc stearate is well-known in the art and it would be obvious to one of ordinary skill in the art to understand and be able to perform the chemistry to precipitate zinc stearate.

Borzelli teaches a method of forming metallic salts of higher fatty acids (Abstract). The method involves making a metallic salt of a fatty acid, such as zinc stearate, by mixing zinc sulfate with sodium stearate to precipitate zinc stearate (1:40-

45, 2:5-10). This method of making zinc stearate is the same method as discussed by instant application. Precipitating zinc stearate is a well-known method of obtaining the material and using zinc stearate in an anode is also well-known and beneficial for reasons already stated.

Therefore, it would be obvious to one of ordinary skill in the art to use the well-known method of obtaining zinc stearate to produce the composition that is going to be used in the well-known anode active material. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

5. Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,492,744 (Brown) in view of US 4,297,249 (Przybyla), US 4,338,200 (Zeijlstra), US 4,146,685 (Tucholski) and US 4,307,027 (Borzelli) as applied to claim 32 above, and further in view of US 5,688,616 (Yamawaki).

The teachings of Brown, Przybyla, Tucholski, Zeijlstra and Borzelli as discussed above are incorporated herein.

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zinc sulfate are substitute salts for use in a battery (7:47-51). Substituting the calcium nitrate salt for the zinc sulfate salt in the well-known precipitation reaction taught by Borzelli to produce the calcium stearate as taught by Tucholski is obvious to one of ordinary skill in the art and well within the purview of the skilled artisan.

It would have been obvious to one skilled in the art at the time of the invention to substitute the calcium nitrate for the zinc sulfate and then with the stearic acid, produce the calcium stearate, since it is held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended us as a batter of obvious design choice (MPEP 2144.07)

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mixture of Brown and Przybyla with the amounts presented in Tucholski to improve the molding and forming of the electrode without diminishing the electrical density of the electrode. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH WALKER whose telephone number is (571)272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Keith Walker/
Examiner, Art Unit 1795